

# **DELTA HF integrale 16v Introduction and technical data**

**93 range**

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## **INTRODUCTION**

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*For anything not dealt with in this publication refer to the 4WD 1st volume Manual Print n° 504.787/02/03/04/05/06/07/08/09/11/12) and to Manual 505.495/02.*

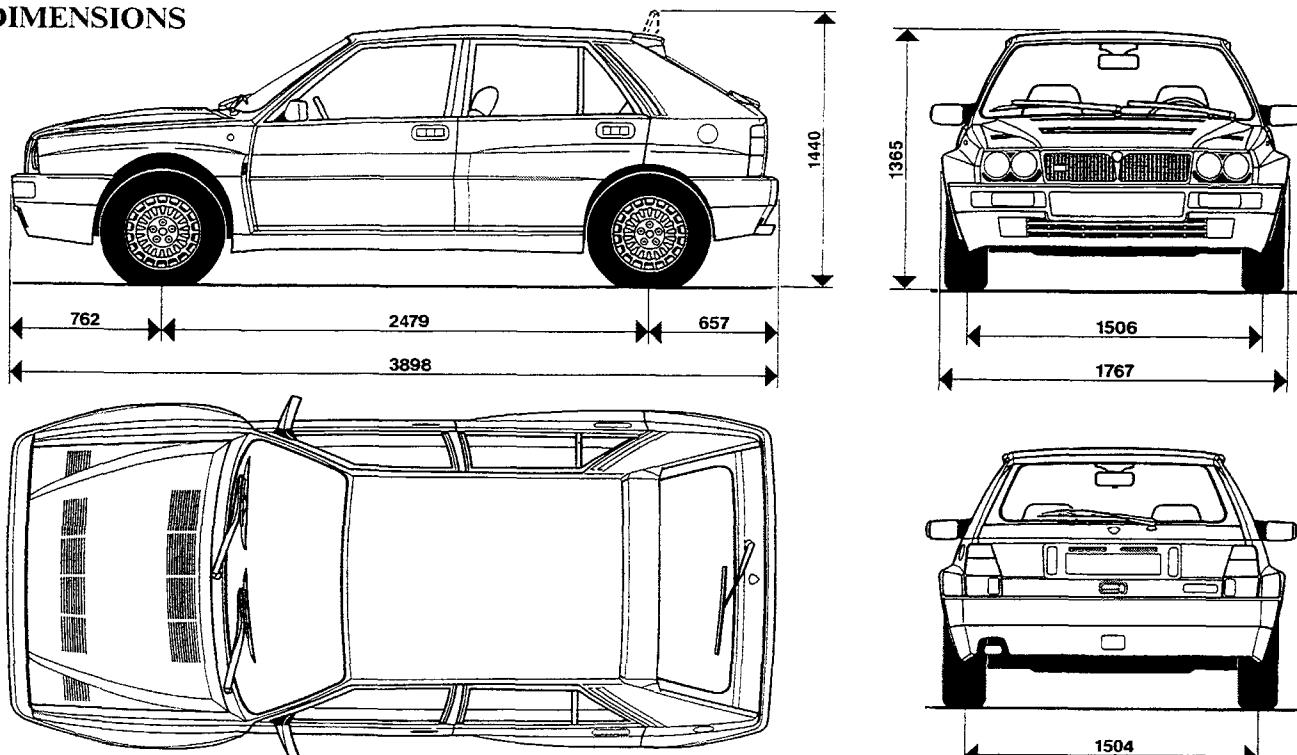
# DELTA HF integrale 16v

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## Introduction Dimensions - Weights

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### DIMENSIONS



P30001A01

The height refers to an unladen vehicle

Luggage compartment capacity (VDA regulations): 200 dm<sup>3</sup>.

Load carrying compartment capacity (rear seat folded down)(VDA regulations): 940 dm<sup>3</sup>.

### WEIGHTS

(in kg)

|  |                        |
|--|------------------------|
|  | 1340                   |
| + 450 =  | 1790                   |
| <b>Maximum permissible loads on the axles</b>                | 1020                   |
|  | 1020                   |
| <b>Maximum permissible load on the roof</b>                  | 80                     |
| <b>Load on the tow hook</b><br>(trailer with braking system) | 70                     |
|  | Without braking system |
|  | With braking system    |
|  | 500                    |
|  | 800                    |

Loads which should never be exceeded

**NOTE FOR ACCESSORIZED VERSIONS:** Where there is special equipment (non standard air conditioner, sun roof, device for trailer), the weight of the vehicle when empty increases and therefore the carrying capacity may increase, compared with the maximum permissible loads.

# Introduction

DELTA HF integrale 16v

Identification data and location on vehicle

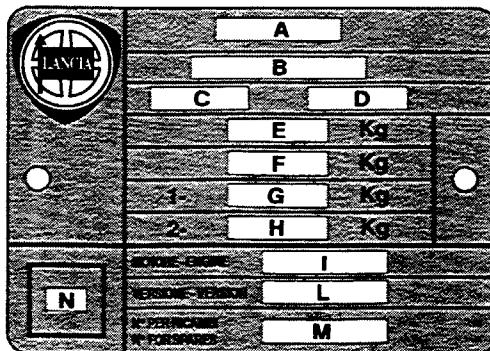
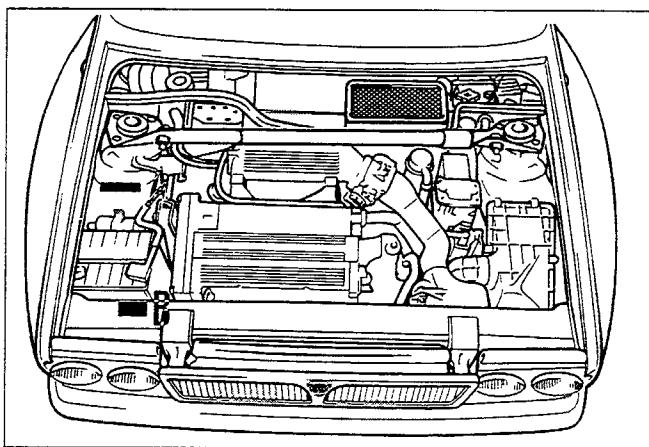
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## IDENTIFICATION DATA

|   | CHASSIS     | ENGINE     | VERSION    | 5 speed gearbox |
|---|-------------|------------|------------|-----------------|
|  | ZLA 831 ABO | 831 E5.046 | 831 ABO 29 | ●               |

## LOCATION OF IDENTIFICATION DATA ON VEHICLE



### A Chassis number

- Type of vehicle: (ZLA 831 ABO)
- chassis manufacture number.

**NOTE** The engine type and number are stamped on the engine crankcase behind the engine oil cartridge filter.

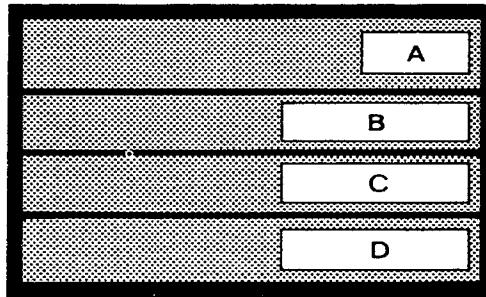
### B V.I.N. Plate (EEC regulations)

- A. Name of manufacturer.
- B. Type approval number.
- C. Vehicle type identification code.
- D. Chassis manufacture number.
- E. Maximum authorized weight of vehicle fully laden.
- F. Maximum authorized weight of vehicle fully laden plus tow.
- G. Maximum authorized weight on first axle (front).
- H. Maximum authorized weight on second axle (rear).
- I. Bodywork version code.
- L. Engine type.
- M. Spares number.
- N. Correct value of smoke absorption coefficient (for diesel engine).

### Body paintwork identification plate

It is located inside the engine compartment cover

- A. Paint manufacturer
- B. Description of colour
- C. Colour code
- D. Colour code for retouches or spraying



|  |   |      |
|--|---|------|
| Speed kph  |    | 62   |
|  |    | 100  |
|  |    | 142  |
|  |    | 188  |
|  |    | 220  |
|  |    | 62   |
| Maximum<br>climable gradient                       |    | 58   |
|  |  | 40   |
|  |  | 25   |
|  |  | 17   |
|  |  | 12   |
|  |  | 68   |
| EEC fuel consumption<br>figures<br>(litres/100 km) | Urban<br>cycle (A)  | 13   |
|  | Constant<br>speed<br>90 km/h (B)  | 8,2  |
|  | Constant<br>speed<br>120 km/h (C)   | 10,6 |
|  | Average consumption<br>(CCMC proposal)<br>$\frac{A+B+C}{3}$                         | 10,6 |

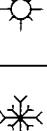
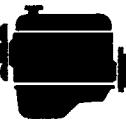
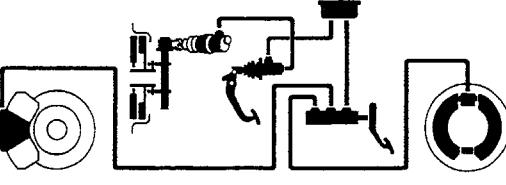
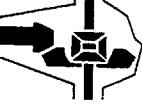
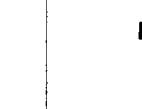
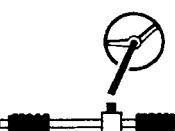
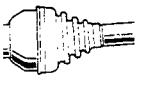
The fuel consumption figures given in the table have been defined in the course of official tests and in accordance with EEC regulation procedures. In particular, the bench tests measure simulated urban cycle fuel consumption whilst fuel consumption at constant speeds of 90 and 120 km/h are measured both directly on a flat, dry road and in equivalent bench tests. These values can provide useful indications for a comparison between different vehicles. Traffic conditions, driving styles, atmospheric conditions and the general state of the vehicle can, in practice, lead to different fuel consumption figures from those established using the above procedures.

# Introduction

## Capacities

**DELTA HF integrale 16v**  
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| Capacities  | Unit  | Quantity        |      |
|---|---|-----------------|------|
|   |   | dm <sup>3</sup> | (kg) |
|  Petrol O.N. 95 unleaded   |     | 57              | -    |
|  50%  +    |       | 6.20            | -    |
| Total capacity of cooling system  |   |                 |      |
|  SELENIA SAE 15W40   | Total capacity   | 5.90            | 5.40 |
|   | Partial capacity (periodic replacement)     | 5.30            | 4.80 |
|  TUTELA TOP 4 (270° C)   |   | 0.56            | -    |
|   | Total capacity of hydraulic clutch and braking system   |                 |      |
|  a = TUTELA ZC 80S    |   | a 3.80          | 3.40 |
| b = TUTELA GI/A    |   | b -             | -    |
|  TUTELA W 90/M DA  | a  b    | a -             | -    |
|   |   | b 1.1           | 1    |
|  a = TUTELA GI/A   | a    | a 0.75          | -    |
| b = K 854   | b   | b -             | -    |
|  c = TUTELA MRM2   | c    | c -             | 0.10 |
|  +    |  ~ - 10 °C 50%   ~ - 20 °C 100%  | 2               | -    |

▲ Distilled water

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# Introduction

Characteristics of Fiat Lubricant products

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| Name of product                  | Description International designation  | Usage   |
|----------------------------------|--|---|
| SELENIA SAE 15 W/40              | Semi-synthetic multigrade engine oil. Exceeds specifications API SG, CCMC-G4 and UNI 20153                         | Temperature - 15°C ÷ 40°C   |
| VS MAX SAE 15 W/40               | Mineral based multigrade engine oil. Exceeds specifications API SG, CCMC-G4 and UNI 20153                          | Temperature - 15°C ÷ 40°C   |
| SELENIA Turbo Diesel SAE 15 W/40 | Semi-synthetic, multigrade engine oil. Exceeds specifications API CD, CCMC-PD2, UNI 20153                          | Temperature - 15°C ÷ 40°C   |
| VS MAX Diesel SAE 15 W/40        | Mineral based multigrade engine oil. Exceeds specifications API CD, CCMC and UNI 20153                             | Temperature - 15°C ÷ 40°C   |
| TUTELA ZC 80S                    | EP SAE 80W oil. Satisfies standards MIL-L-2105 and API GL4   | Manual gearboxes and differentials  |
| TUTELA ZC 90                     | Non EP SAE 80 W/90 oil. for manual gearboxes. containing anti-wear additives.                                      | Gearboxes and non hypoid differentials  |
| TUTELA W 90/M DA                 | Special sae 80 w/90 ep oil for normal and self-locking differentials. Satisfies standards MIL-L-2105 D and API GL5 | Hypoid differentials<br>Self-locking differentials.<br>Steering boxes                               |
| TUTELA GI/A                      | "DEXRON II" type oil for automatic transmissions.  | Automatic gearboxes.<br>Power assisted steering   |
| TUTELA CVT Universal             | Oil for continuous variation automatic transmissions.  | Continuous variation automatic transmissions  |
| TUTELA JOTA 1                    | Lithium soap based grease. consistency NLGI = 1  | Greasing the vehicle except for components particularly exposed to water requiring special greases. |
| TUTELA MRM2                      | Water-repellant, lithium soap based grease containing molybdenum disulphide, consistency NLGI = 2                  | Constant velocity joints  |
| TUTELA MR3                       | Lithium soap based grease. consistency NLGI = 3  | Wheel hub bearings, steering rod, various components  |
| TUTELA PLUS 3 (240 °C)           | Synthetic fluid. F.M.V.S.S. n° 116 DOT 3 ISO 4925. CUNA NC 956-01  | Hydraulic brakes and hydraulically operated clutches  |
| TUTELA TOP 4 (270 °C)            | Synthetic fluid. F.M.V.S.S. n° 116 DOT 4 ISO 4925, CUNA NC 956-01  | Hydraulic brakes and hydraulically operated clutches  |
| K 854                            | Lithium soap based grease, consistency NLGI = 000, containing molybdenum disulphide                                | Rack and pinion steering boxes  |
| SP 349                           | Special grease compatible with brake fluid   | Load proportioning valve<br>Load proportioning valve rod bush                                       |
| Arexons DP1                      | Mixture of alcohol, water and surface agents CUNA NC 956-11  | To be used undiluted or diluted in windscreen washer systems  |
| Paraflu <sup>n</sup>             | Mono-ethylene glycol based anti-freeze for cooling system . CUNA NC 596 - 16                                       | Cooling circuits.<br>Percentage to be used 50% up to - 35°C   |
| Diesel Mix Arexons               | Additive for diesel fuel with protective action for diesel engines   | To be mixed with the diesel fuel (25 cc per 10 litres)  |

# Technical data

## Engine

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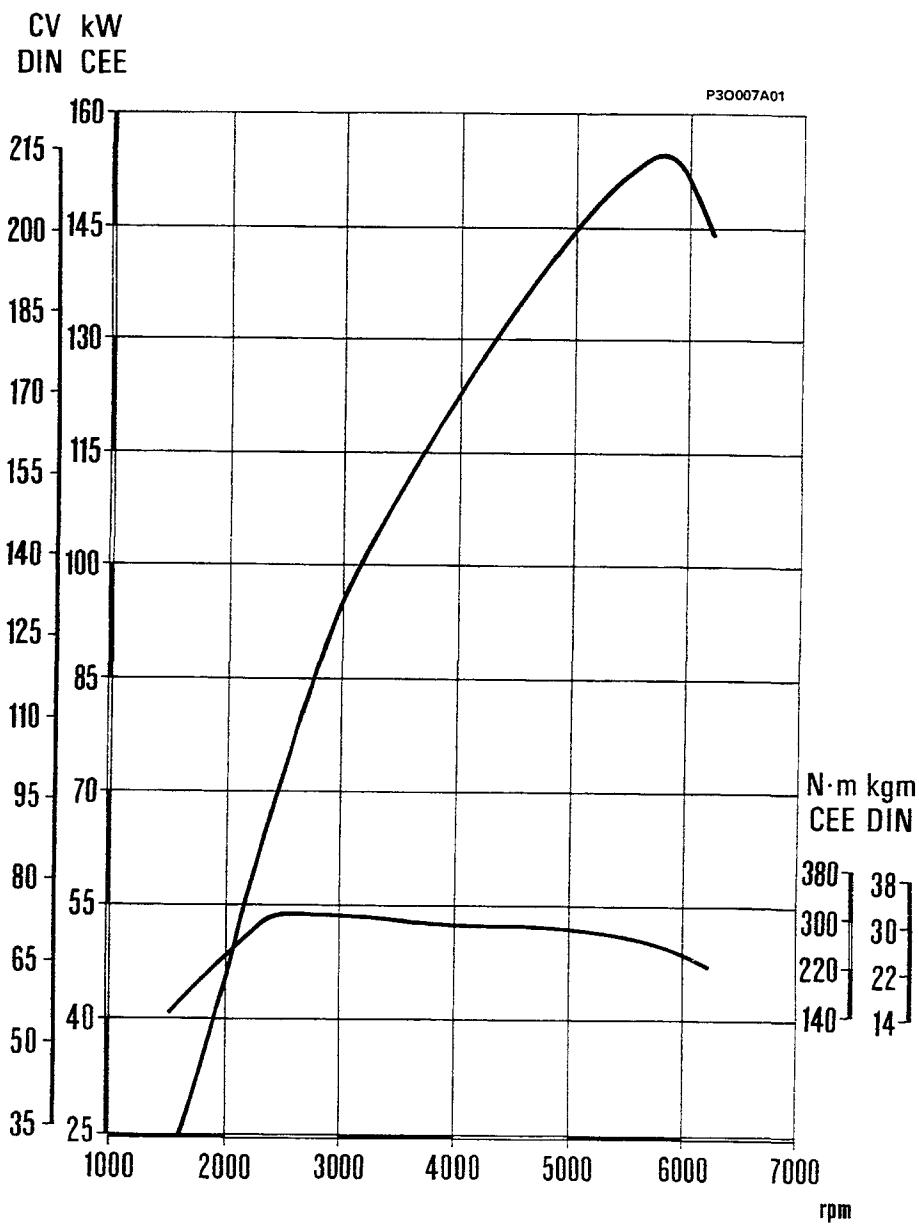
**DELTA HF integrale 16v**

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### CHARACTERISTICS

|  |                                       |  |
|--|---------------------------------------|--|
|  | Cycle                                 | OTTO 4 stroke supercharged                         |
|  | Timing                                | with 2 overhead camshafts TOHC                     |
|  | Engine balancing                      | by means of 2 counter balance shafts               |
|  | Fuel system type                      | Weber-Marelli I.A.W. electronic injection/ignition |
|  | Number of cylinders                   | 4  |
|  | Cylinder liner (bore) mm              | 84   |
|  | Stroke mm                             | 90   |
|  | Capacity cc                           | 1995   |
|  | Compression ratio                     | 8  |
|  | Max power<br>kW (CEE)<br>CV (DIN)     | 155<br>(215)                                       |
|  | rpm                                   | 5750   |
|  | Max torque<br>daNm (CEE)<br>kgm (DIN) | 30.8<br>(32)                                       |
|  | rpm                                   | 2500   |



**Typical power curves obtained by EEC method**

The power curve illustrated can be obtained with the engine overhauled and run in, without a fan, with a silencer and air filter fitted at sea level.

# Technical data

Engine: cylinder head assembly and valve gear components

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93 range

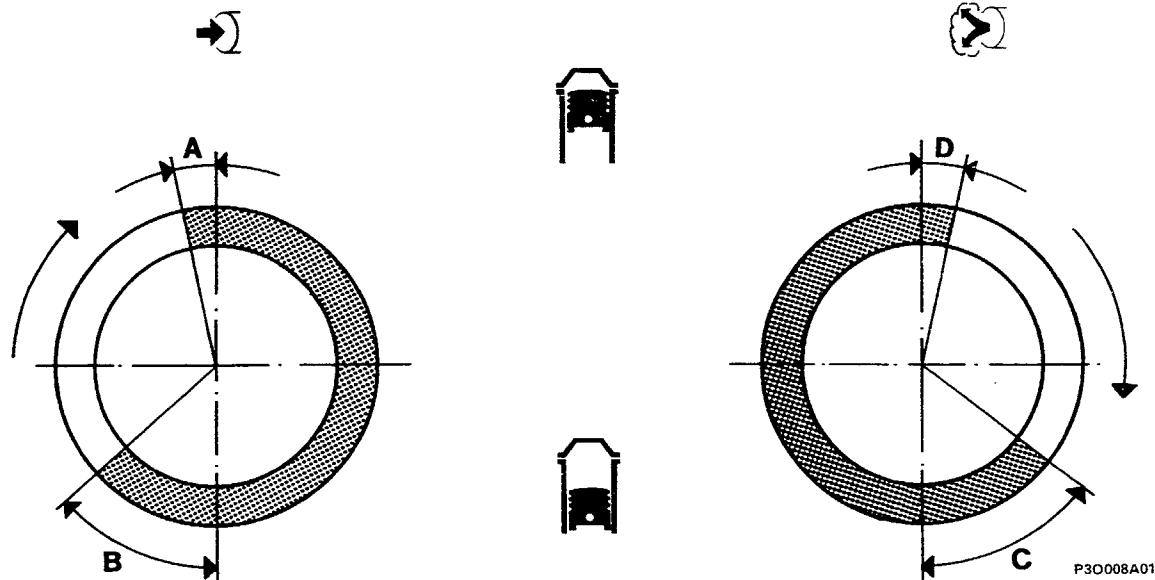
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## DESCRIPTION

|                                    | Values in mm |
|------------------------------------|--------------|
| 17 - 20 clearance for timing check | 0,80         |
| 17 - 20 operational clearance      | 0,80         |
| 17 - 20                            | 0,35 ± 0,04  |
| 17 - 20                            | 0,40 ± 0,03  |

## TIMING DIAGRAMS



## TIMING ANGLES

|   |         |             |     |
|---|---------|-------------|-----|
| A | Inlet   | opens BTDC  | 8°  |
| B |         | closes ABDC | 35° |
| C | Exhaust | opens BBDC  | 30° |
| D |         | closes ATDC | 0°  |

**DELTA HF integrale 16v**  
**93 range**

**Technical data**  
**Engine: fuel system**

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**WEBER - MARELLI (IAW) INTEGRATED ELECTRONIC INJECTION/IGNITION SYSTEM  
COMPONENTS**



|   |               |
|---|---------------|
| IAW-4WG injection/ignition system electronic control unit             |               |
| Throttle casing   | 56 CFL 95     |
| Fuel pressure regulator   | RPI/3 bar     |
| Injector  | IW 058        |
| Automatic idle adjustment solenoid valve                              | VAE - 06      |
| Electric fuel pump  | PI-022        |
| Fuel filter   | FI-02/2       |
| Absolute pressure sensor  | PRT 06        |
| Throttle valve position sensor (potentiometer)                        | PF-09         |
| Coolant temperature sensor  | WTS - 05      |
| Intake air temperature sender unit                                    | ATS - 04      |
| Lambda sensor (Bosch)   | 0.258.003.009 |
| Twin relay feed for electric pump and injection/ignition control unit | RSC 240 102   |
| Waste-gate solenoid valve (Pierburg)                                  | 7.2105.00     |

# Technical data

Engine: fuel system-supercharging

DELTA HF integrale 16v

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## FUEL SYSTEM

|                                     |  |
|-------------------------------------|--|
| Type                                | Weber Marelli I.A.W.<br>integrated electronic injection/ignition |
| Pump                                | electrical   |
| Capacity                            | about 120 l/h  |
| Fuel pressure regulator calibration | 3 bar  |

## Checking concentration of idle exhaust emissions

|                                       | CO (%)  | HC (p.p.m.) | CO <sub>2</sub> (%) |
|---------------------------------------|---------|-------------|---------------------|
| Upstream of the catalytic converter   | 0.4 ÷ 1 | ≤600        | ≥ 12                |
| Downstream of the catalytic converter | ≤0,35   | ≤90         | ≥ 13                |

## SUPERCHARGING

Turbocharger operated by exhaust gases, cooled by engine coolant and with waste-gate valve and air/air heat exchanger.

Cross section of turbocharger

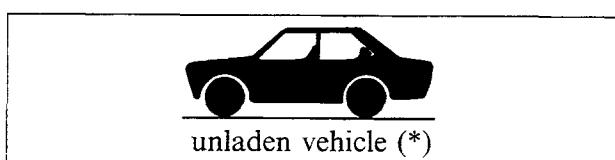
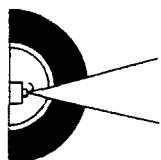
|                                |            |
|--------------------------------|------------|
| Turbocharger: type             | Garrett T3 |
| Maximum supercharging pressure | 1 bar      |

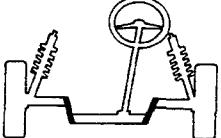
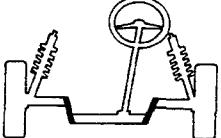
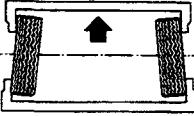
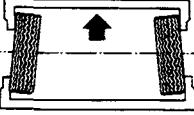
## WHEELS

|   |       |                |                           |
|---|-------|----------------|---------------------------|
|  | Tyre  | type           | 205/45 - ZR 16"           |
|  | front | { average load | 2,2 bar                   |
|   |       | { heavy load   | 2,5 bar                   |
|  | rear  | { average load | 2,2 bar                   |
|   |       | { heavy load   | 2,5 bar                   |
|  | Rim   | type           | light alloy 7½Jx16" H2-37 |

NOTE Spare wheel with 3,50 Bx16" H2-37 light alloy rim and T115/70 R16" tyre  
Speed limit: 80 km/h. Inflation pressure: 4,2 bar

## WHEEL GEOMETRY



|   |             |   |               |
|---|-------------|---|---------------|
|  | camber (**) |  | - 1° ± 30°    |
|  | caster (**) |  | 4°10' ± 30'   |
| Front suspension  | toe in      |  | 0 ± 2 mm (●)  |
|  | camber (**) |  | - 1°30' ± 30' |
| Rear suspension   | toe in      |  | 3 ÷ 5 mm (●)  |

(\*) With tyres inflated to the correct pressure and vehicle in running order (with full fuel tank)

(\*\*) Angles cannot be adjusted (●) Measured between the wheel rims

# Technical data

## Electrical equipment

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### SUMMARY OF DATA

|                   |   |
|-------------------|---|
| STARTER MOTOR     | M. Marelli E70R - 1,4 kW - 12 V (with reduction gear)           |
| ALTERNATOR        | M. Marelli AA125R - 14 V - 65 A                                 |
| VOLTAGE REGULATOR | M. Marelli RTT 119 AC   |
| BATTERY           | 12 V - 55 Ah - 225 A  |
| IGNITION SYSTEM   | Weber-Marelli (MPI)<br>integrated electronic injection/ignition |
| IGNITION COIL     | M. Marelli BAE 800 AK   |
| POWER MODULE      | M. Marelli AEI 450A   |
| SPARK PLUGS       | Bosch WR6 DTC<br>(with three point electrode)                   |

**DELTA HF integrale 16v**

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**Technical data****Electrical equipment: electronic injection/ignition****00.55****WEBER - MARELLI (IAW) INTEGRATED ELECTRONIC INJECTION/IGNITION CONTROL MODULE**

|               |                         |
|---------------|-------------------------|
| Make and type | Weber-Marelli IAW - 4WG |
| Firing order  | 1 - 3 - 4 - 2           |

**IGNITION COIL WITH 2 HIGH TENSION PICK UPS (n° 2)**

|  |            |
|--|------------|
| Make   | M. Marelli |
| Type   | BAE 800 AK |
| Ohmic resistance of primary winding at 20 °C   | Ω          |
| 0,495 ÷ 0,605                                  |            |
| Ohmic resistance of secondary winding at 20 °C | Ω          |
| 6660 ÷ 8140                                    |            |

**POWER MODULE**

|               |                      |
|---------------|----------------------|
| Make and type | M. Marelli AEI 450 A |
|---------------|----------------------|

**DETONATION SENSOR**

|      |               |
|------|---------------|
| Make | Bosch         |
| Type | 0.261.234.095 |

**TDC AND RPM SENSOR**

|   |                    |
|---|--------------------|
| Make and type   | M. Marelli SEN 8 D |
| Sensor winding resistance at 20 °C                                | Ω                  |
| 578 ÷ 782   |                    |
| Distance (gap) between the sensor and the crankshaft pulley tooth | mm                 |
| 0,4 ÷ 1   |                    |

**IGNITION TIMING SENSOR (HALL effect)**

|               |                      |
|---------------|----------------------|
| Make and type | M. Marelli SFA 100 A |
|---------------|----------------------|

**ADVANCE ON ENGINE**

|                                 |          |
|---------------------------------|----------|
| With engine idling (850±50 rpm) | 10° ± 2° |
|---------------------------------|----------|

**SPARK PLUGS**

|               |               |
|---------------|---------------|
| Make and type | Bosch WR6 DTC |
| Thread        | M 14 x 1,25   |
| Electrode gap | mm            |
| 0,8 ÷ 1       |               |

### FREE SERVICE

Together with the documents which LANCIA supply with every new vehicle, the Owner will receive a free service coupon to be used after 1000 - 1500 km which recommends carrying out the following "Systematic Checks" in accordance with the warranty methods given in the Service Booklet.

|  |  |
|--|--|
| Tightening   | - inlet and exhaust manifolds  |
| Checks   | - CO idle content  |
| Inspections  | <ul style="list-style-type: none"><li>- ignition advance</li><li>- correct injector fitting</li><li>- tyre wear</li><li>- engine idle speed with possible adjustment</li><li>- exhaust pipes/silencers with possible adjustments/alignment</li><li>- door and lid knobs/locks, lubricating if necessary</li><li>- tightening doors and lids and adjusting if necessary</li></ul> |
| Check seal of system seals, pipes and unions eliminating leaks and topping up levels, if necessary | <ul style="list-style-type: none"><li>- engine lubrication</li><li>- engine cooling</li><li>- fuel system</li><li>- braking system and hydraulically operate clutch</li><li>- power assisted steering</li></ul>  |
| Check seal of gasket/boots   | <ul style="list-style-type: none"><li>- gearbox</li><li>- differential</li><li>- steering</li><li>- transmission</li><li>- shock absorbers</li></ul>   |
| Change   | <ul style="list-style-type: none"><li>- engine oil</li><li>- cartridge oil filter</li><li>- gearbox oil</li><li>- rear differential oil</li></ul>  |
| Air conditioning system checks   | <ul style="list-style-type: none"><li>- compressor belt tension</li><li>- fixing of compressor bolts and pulley</li><li>- system operation and refrigeration</li></ul>   |

### Lubrication service

The engine oil should be changed every 15,000 Km, or, irrespective of the mileage, every 12 months.

The oil filter should be replaced at the same time as the engine oil is changed.

For the correct and optimum operation of the engine it is advisable to use the type of oil recommended in the table on page 4.



*If the vehicle is constantly subject to heavy usage (a great deal of town driving, journeys in dusty areas, constant mountain driving, towing a trailer or caravan, harsh climatic conditions, constant motorway driving at high speeds, etc.) then these lubrication services must be carried out at more frequent intervals. In the above mentioned conditions it is also advisable to carry out the Planned maintenance services and the intermediate checks more often.*

**DELTA HF integrale 16v**  
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**Technical data**  
**Planned maintenance**

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**PLANNED MAINTENANCE  
OPERATIONS**

|   | THOUSANDS OF KM | 15 | 30 | 45 | 60 | 75 | 90 |
|---|-----------------|----|----|----|----|----|----|
|   | MONTHS          | 12 | 24 | 36 | 48 | 60 | 72 |
| Check tightening of inlet and exhaust manifolds   |                 | ☆  |    |    | ☆  |    | ☆  |
| Check operation of Lambda sensor  |                 |    |    | ☆  |    |    | ☆  |
| Check idle CO content   | ☆               | ☆  | ☆  | ☆  | ☆  | ☆  | ☆  |
| Check anti-evaporation system   |                 |    |    | ☆  |    |    | ☆  |
| Check, adjustment tappet clearance  |                 | ☆  |    |    | ☆  |    | ☆  |
| Check condition and wear of tyres   | ☆               | ☆  | ☆  | ☆  | ☆  | ☆  | ☆  |
| Check operation of front brake pad wear indicator   | ☆               | ☆  | ☆  | ☆  | ☆  | ☆  | ☆  |
| Check condition and wear of rear brake pads   |                 | ☆  |    | ☆  |    |    | ☆  |
| Visual inspection bodywork exterior and underbody protection  | ☆               | ☆  | ☆  | ☆  | ☆  | ☆  | ☆  |
| Check condition of pipes (exhaust, supply, fuel system, braking system)   | ☆               | ☆  | ☆  | ☆  | ☆  | ☆  | ☆  |
| Check condition of rubber elements, boots, hoses, etc.  | ☆               | ☆  | ☆  | ☆  | ☆  | ☆  | ☆  |
| Check condition and tension of various drive belts and adjust if necessary  |                 |    |    |    |    |    | ☆  |
| Check crankcase ventilation system  |                 |    |    |    |    |    | ☆  |
| Replace fuel filter   |                 | ☆  |    | ☆  |    |    | ☆  |
| Replace air filter cartridge  |                 | ☆  |    | ☆  |    |    | ☆  |
| Changing engine oil and oil filter  | ☆               | ☆  | ☆  | ☆  | ☆  | ☆  | ☆  |
| Top up fluid levels (engine cooling, braking system, windscreen washer, power assisted steering, hydraulically operated clutch) | ☆               | ☆  | ☆  | ☆  | ☆  | ☆  | ☆  |
| Check condition of timing belt  |                 |    |    |    | ☆  |    |    |
| Check condition of counter balance shaft belt   |                 | ☆  |    | ☆  |    |    | ☆  |
| Check ignition cables   | ☆               | ☆  | ☆  | ☆  | ☆  | ☆  | ☆  |
| Replace spark plugs   | ☆               | ☆  | ☆  | ☆  | ☆  | ☆  | ☆  |
| Check ignition/injection system   |                 | ☆  |    | ☆  |    |    | ☆  |
| Change front differential and gearbox oil   |                 | ☆  |    | ☆  |    |    | ☆  |
| Change rear differential oil  |                 | ☆  |    | ☆  |    |    | ☆  |

**00.**

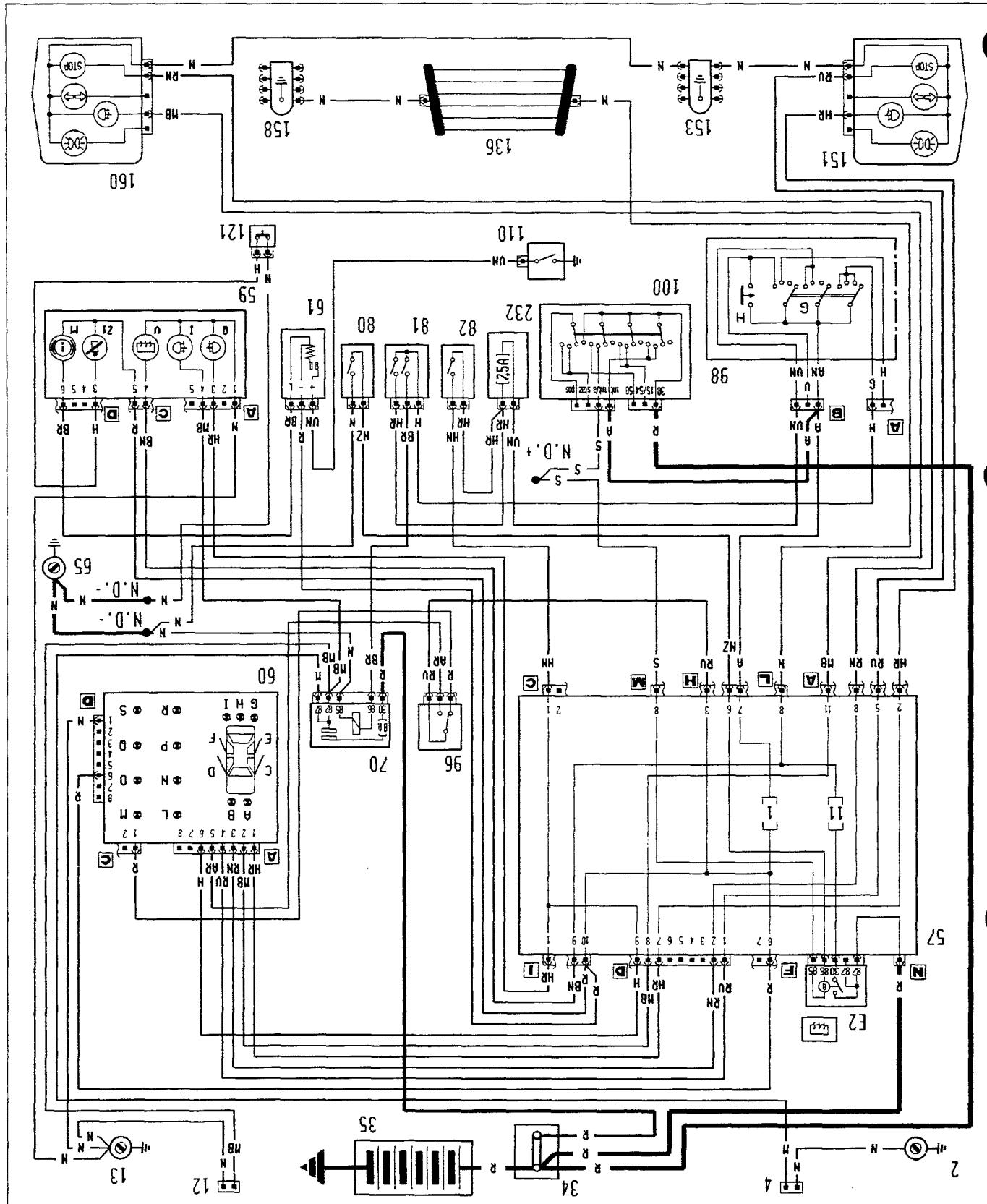
**Additional operations**

In addition to the operations in the "Planned maintenance" programme the following checks are also needed

|  |   |
|--|---|
| Every 500 km or before long journeys check | - engine oil level<br>- coolant level<br>- brake fluid level<br>- tyre inflation pressure |
| Every 60,000 km or 2 years change          | - engine coolant  |
| Every 105,000 km change                    | - timing belt<br>- counter balance shaft drive belt                                       |
| Every 120,000 km change                    | - gearbox oil   |
| Every 2 years change                       | - brake fluid   |

| <b>DESCRIPTION</b>   | <b>2000 i.e. HF<br/>integrale 16v</b> |
|--|---------------------------------------|
| Starting - I.A.W. electronic injection/ignition - Recharging and warning light - Insufficient engine oil pressure warning light - Injection system failure warning light   | 10                                    |
| Parking lights and warning lamp - Dipped headlamps and warning light - Main beam headlamps and warning light - Headlamp flasher - Number plate lights - Direction indicators and warning light - Hazard warning lights and warning light - Reversing lights - Luggage compartment light -  | 11                                    |
| Rear fog lamps and warning light - Braking lights - Heated rear windscreen and warning light - Preparation for fog lamps and warning light - Handbrake warning light - Seat belt warning light   | 1                                     |
| Electric horns - Car interior ventilation - Front brake pad wear warning light - Insufficient brake fluid level warning light - Insufficient engine oil pressure warning light - Insufficient engine oil warning light - Insufficient coolant level warning light  | 2                                     |
| Engine cooling - Fuel level gauge and reserve warning light - Rev counter - Voltmeter - Water temperature gauge and overheating warning light  | 3                                     |
| Windscreen wiper - Rearscreen wiper - Electric windscreen washer pump - Electric pump for rearscreen washer  | 4                                     |
| Car interior lighting - Oddments pocket light - Cigar lighter - Digital clock - Preparation for radio - Switch light - Instrument panel light and dimmer - Combined instrument - Engine oil pressure gauge - Engine oil temperature gauge  | 5                                     |
| Electric front windows - Central locking   | 6                                     |
| Electric sun roof  | 7                                     |
| Version without control system: Parking lights and warning lamp - Braking lights - Handbrake applied and insufficient brake fluid level warning light - Battery recharging warning light - Front brake pad wear warning light - Insufficient engine oil pressure warning light - Coolant overheating warning light - Rev counter | 8                                     |
| Air conditioning   | 9                                     |
| Anti-lock brakes and failure warning light (A.B.S.)  | 12                                    |
| Control-System   | 13                                    |

**NOTE** The numbers in the table correspond to the page number of the electrical equipment in the manual



Version: 2000 i.e. HF 16v integrable  
Rear fog lamps and warming lights - Braking lights - Heated rear windscreens and warming lights - Preparation for fog lamps and warming lights - Handbrake warning light - Seat belt unfastened warning light - (See key at end of wiring diagrams).

# Electrical equipment

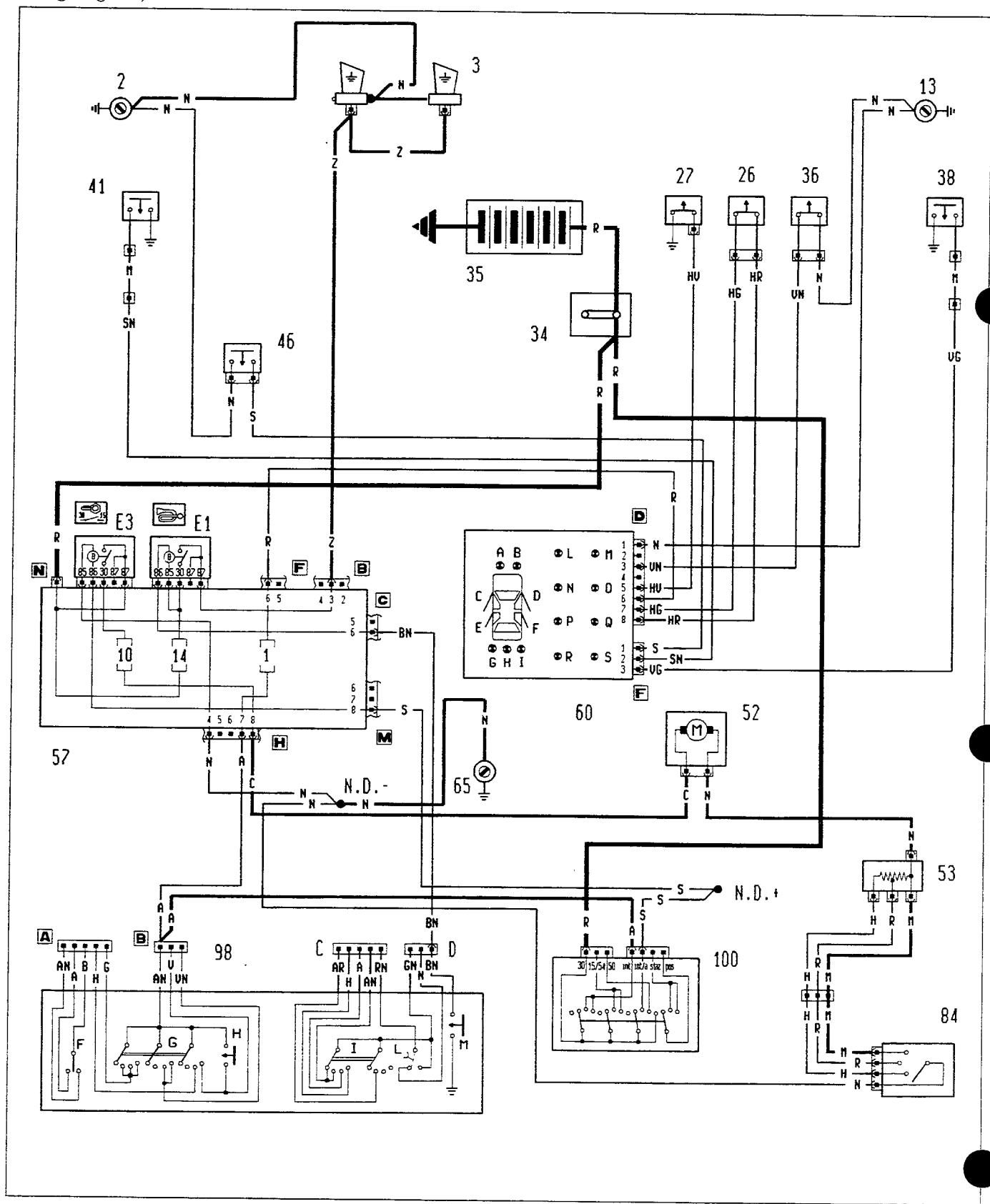
## Wiring diagrams

DELTA HF integrale 16v  
93 range

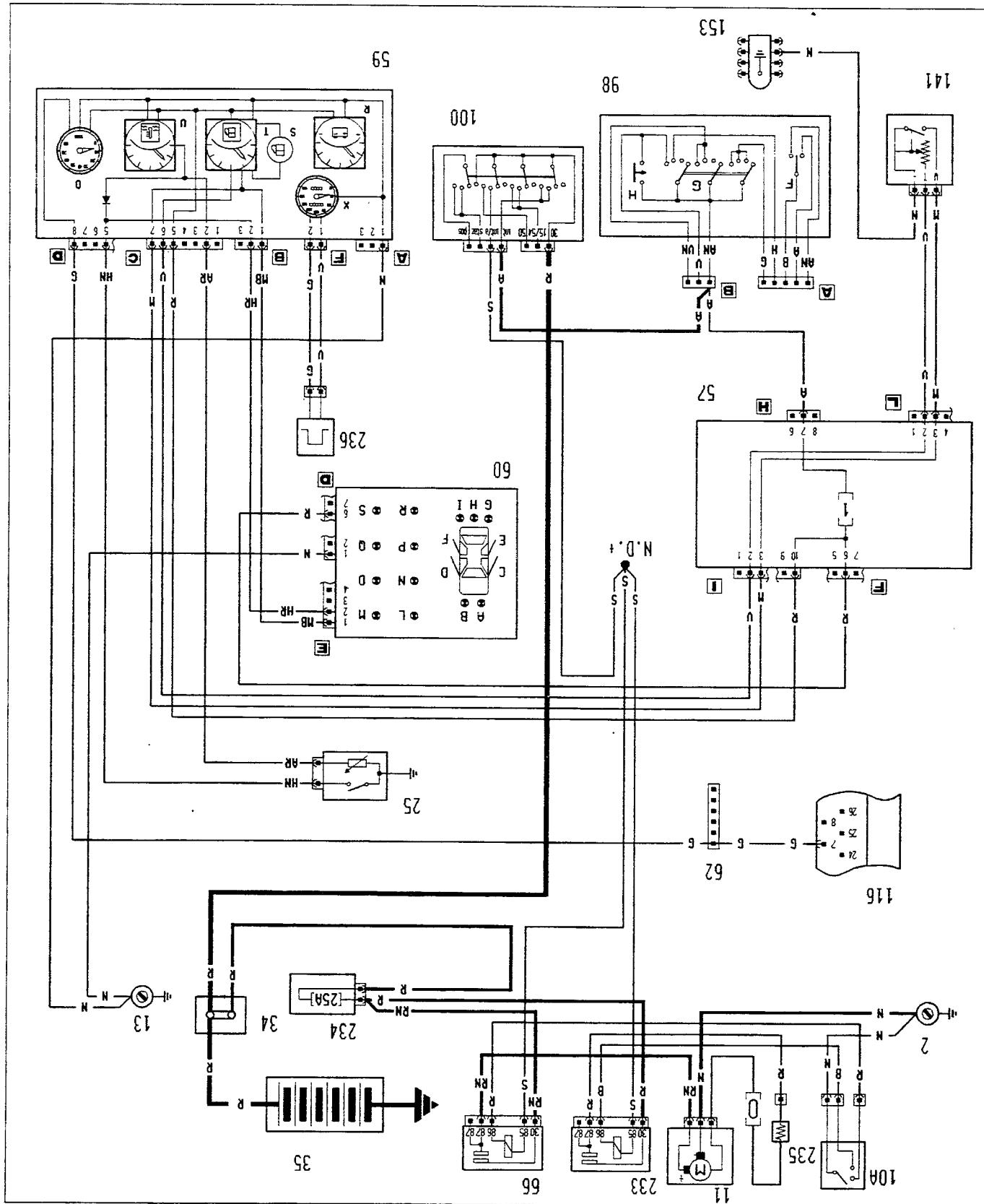
55.

Version: 2000 i.e. HF integrale 16v

Electric horns - Car interior ventilation - Front brake pad wear warning light - Insufficient brake fluid level warning light - Insufficient engine oil pressure warning light - Insufficient engine oil warning light - Insufficient coolant level warning light (See key at end of wiring diagrams)



P3002ZL01



Version: 2000 i.e. HF integrable 16v  
Engine cooling - Fuel level gauge and reserve warning light - Rev counter - Speedometer - Voltmeter - Water temperature gauge and over-heating warning light - (See key at end of wiring diagrams).

# Electrical equipment

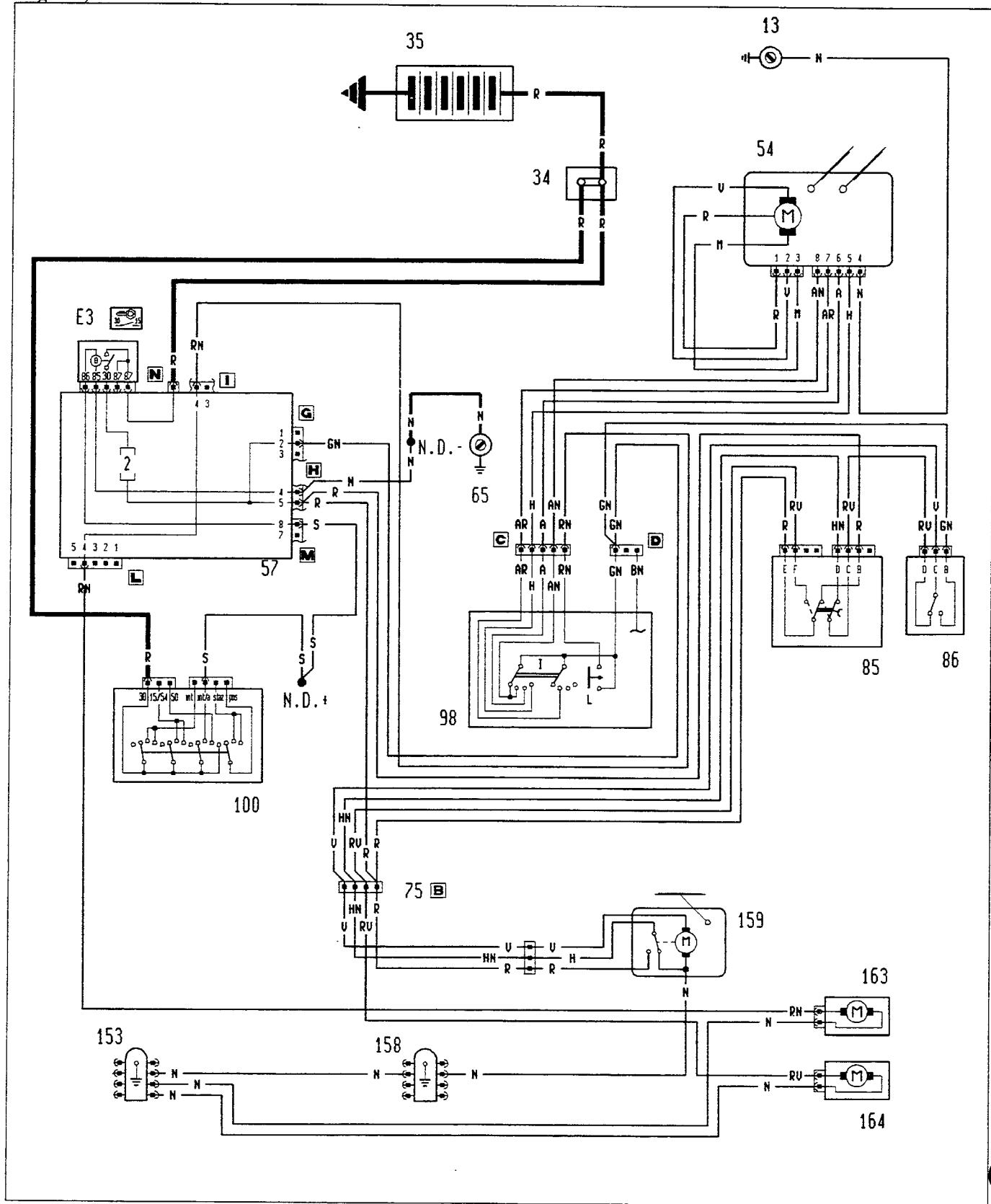
## Wiring diagrams

DELTA HF integrale 16v  
93 range

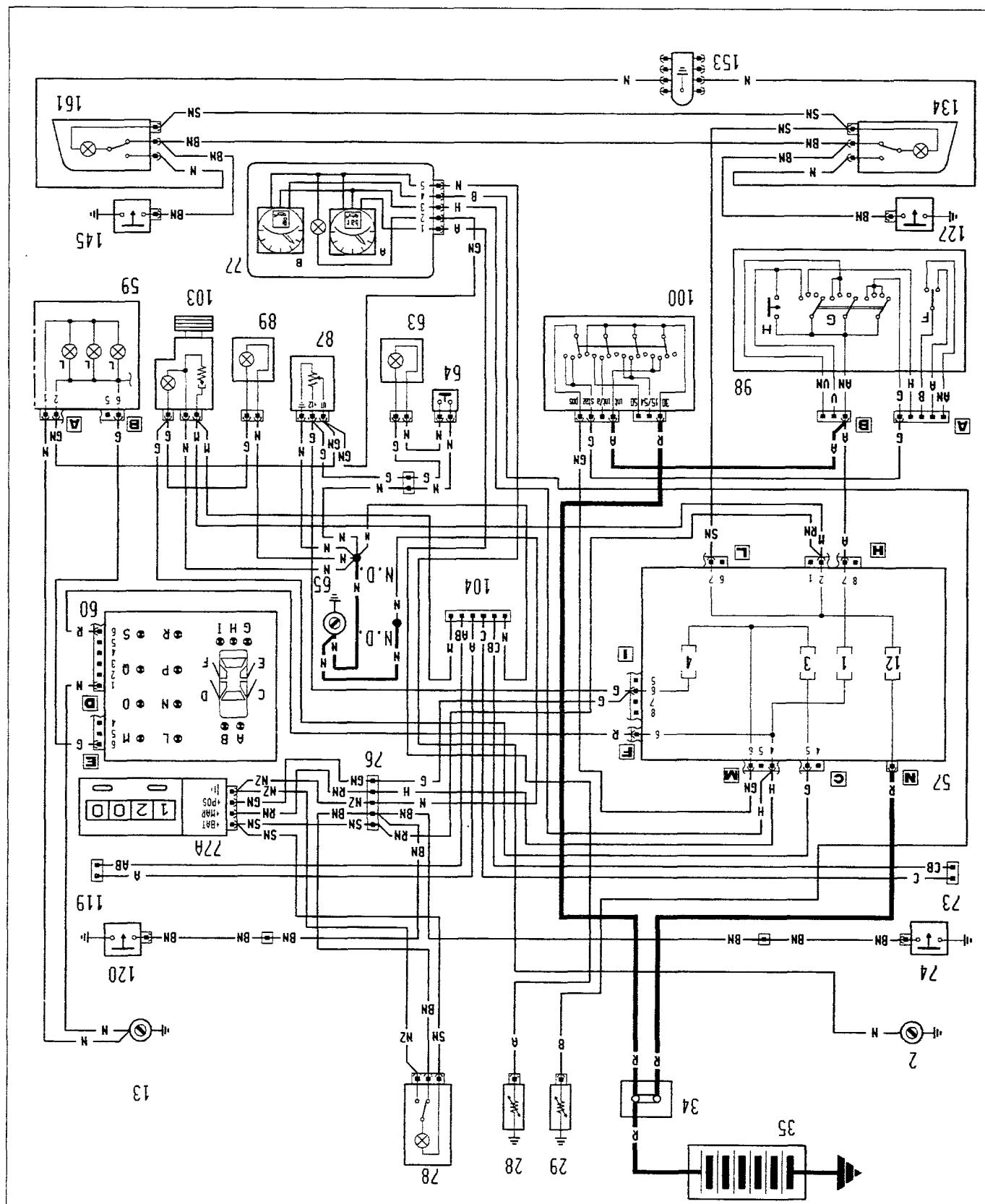
55.

Version: 2000 i.e. HF integrale 16v

Windscreen wiper - Rearscreen wiper - Electric windscreen washer pump - Electric pump for rearscreen washer - (See key at end of wiring diagrams)



P3004ZL01



Car interior lighting - Glove compartment light - Cigarette lighter - Digital clock - Preparation for radio - Switch light - Instrument panel light and dimmer - Combined instrument - Engine oil pressure gauge - Engine oil temperature gauge - (See key at end of wiring diagrams).

Version: 2000 i.e. HF integrator 16v

93 range  
Wiring diagrams  
DELTA HF integrator 16v  
Electrical equipment  
55.

# Electrical equipment

## Wiring diagrams

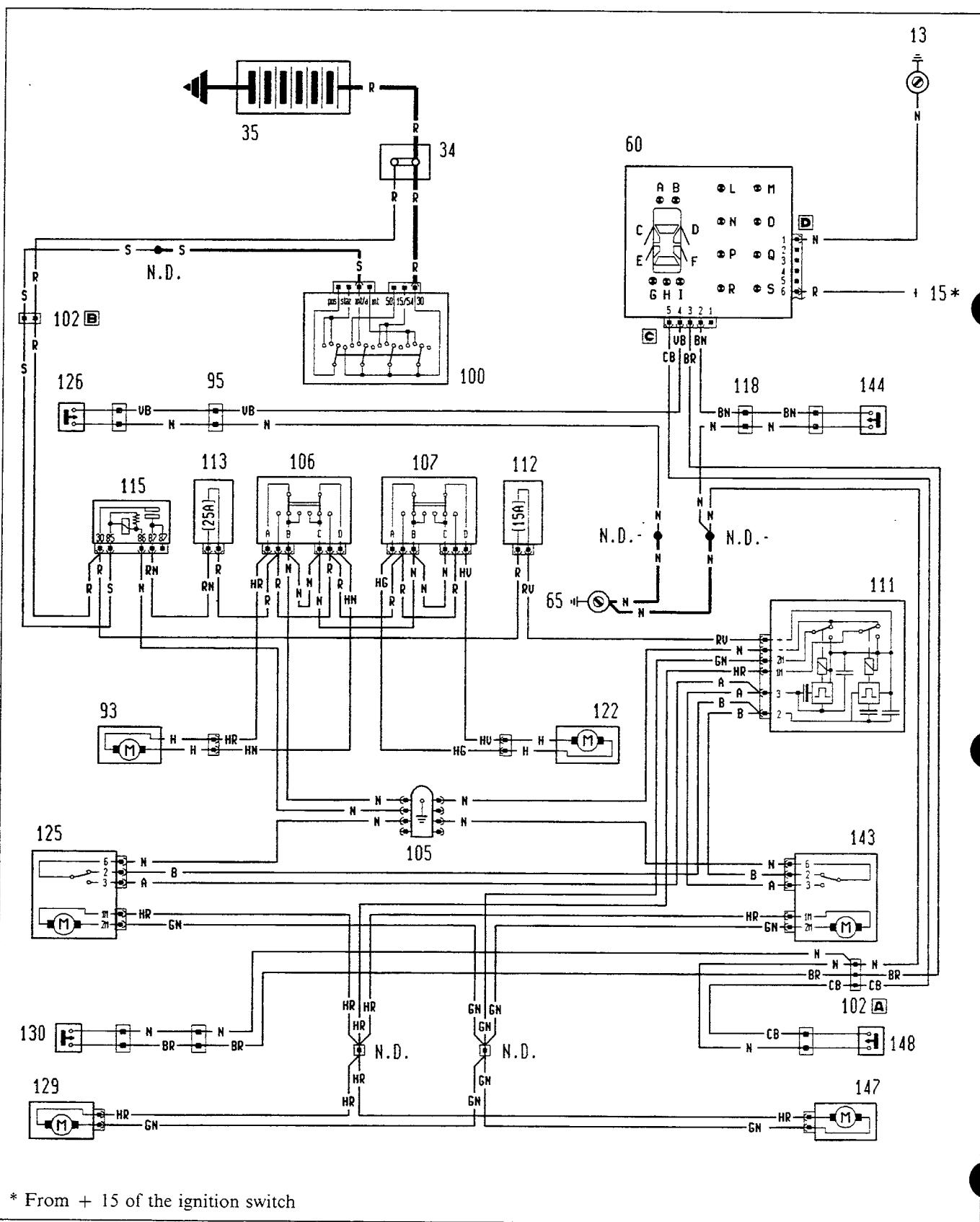
DELTA HF integrale 16v

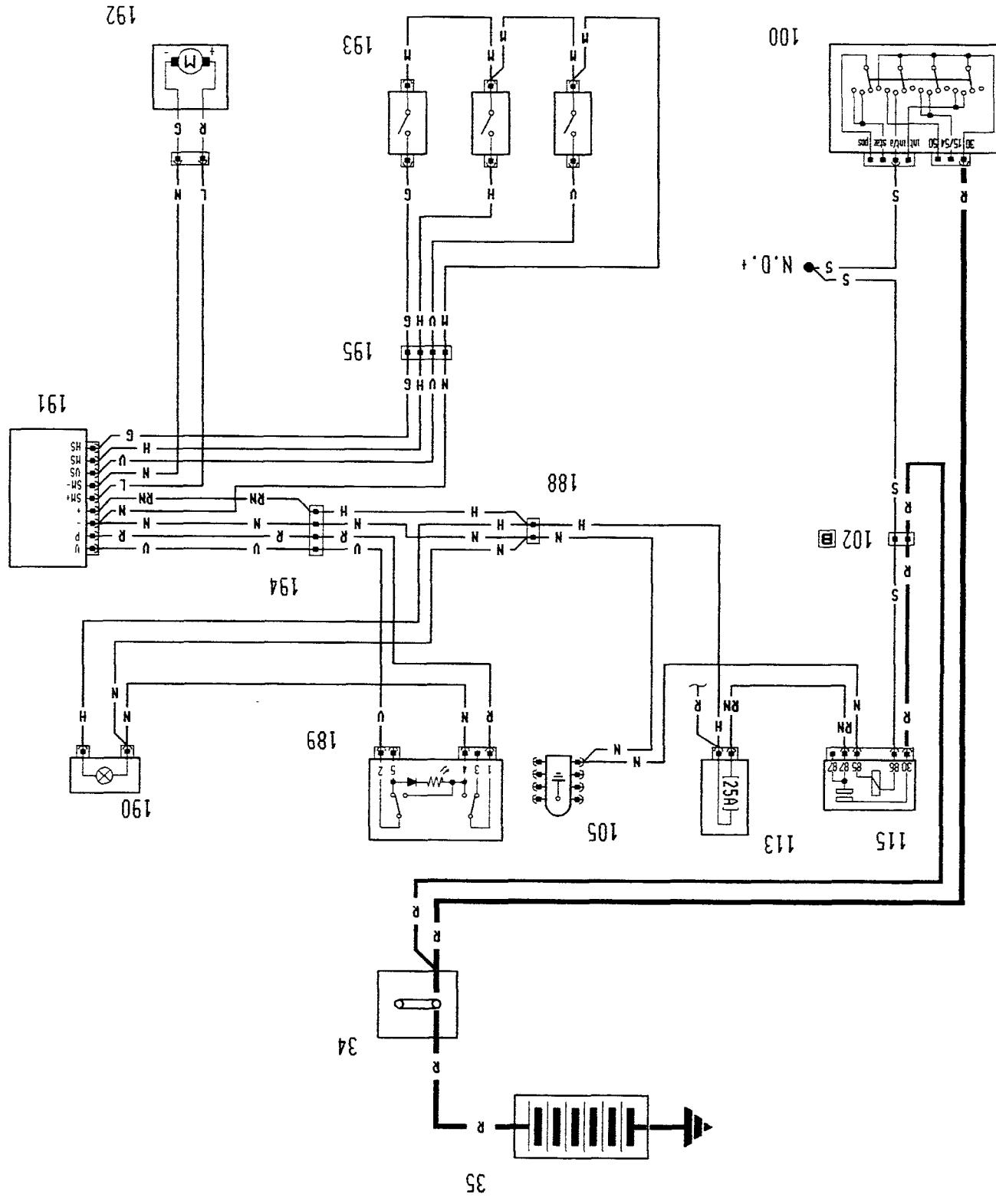
93 range

55.

Version: 2000 i.e. HF integrale 16v

Electric front windows - Central locking - (See key at end of wiring diagrams)





Electric sun roof - (See key at end of wiring diagrams).

Version: 2000 i.e. HF integrable 16V

# Electrical equipment

## Wiring diagrams

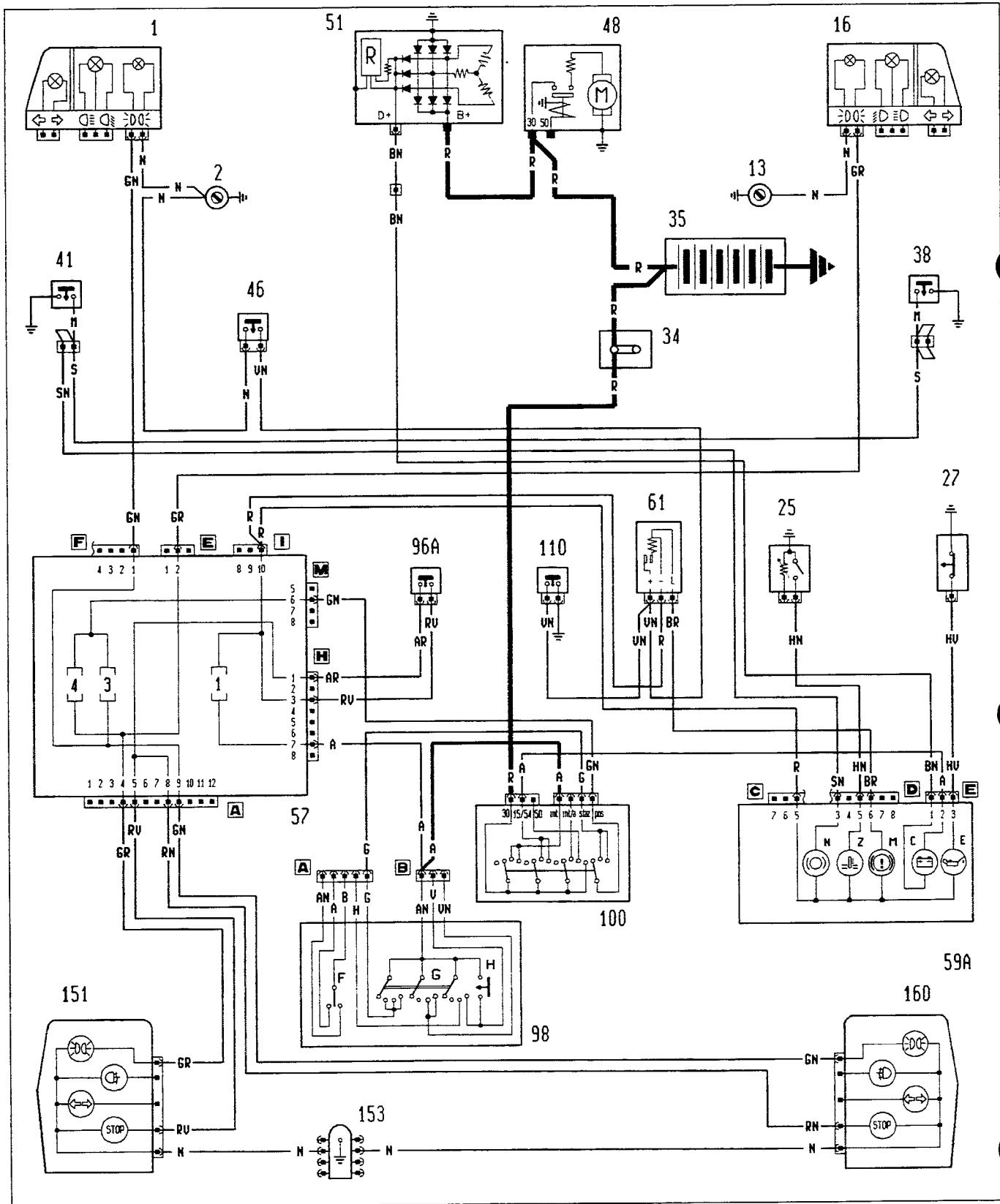
DELTA HF integrale 16v

93 range

55.

Variant without Control-system: 2000 i.e. HF integrale 16v

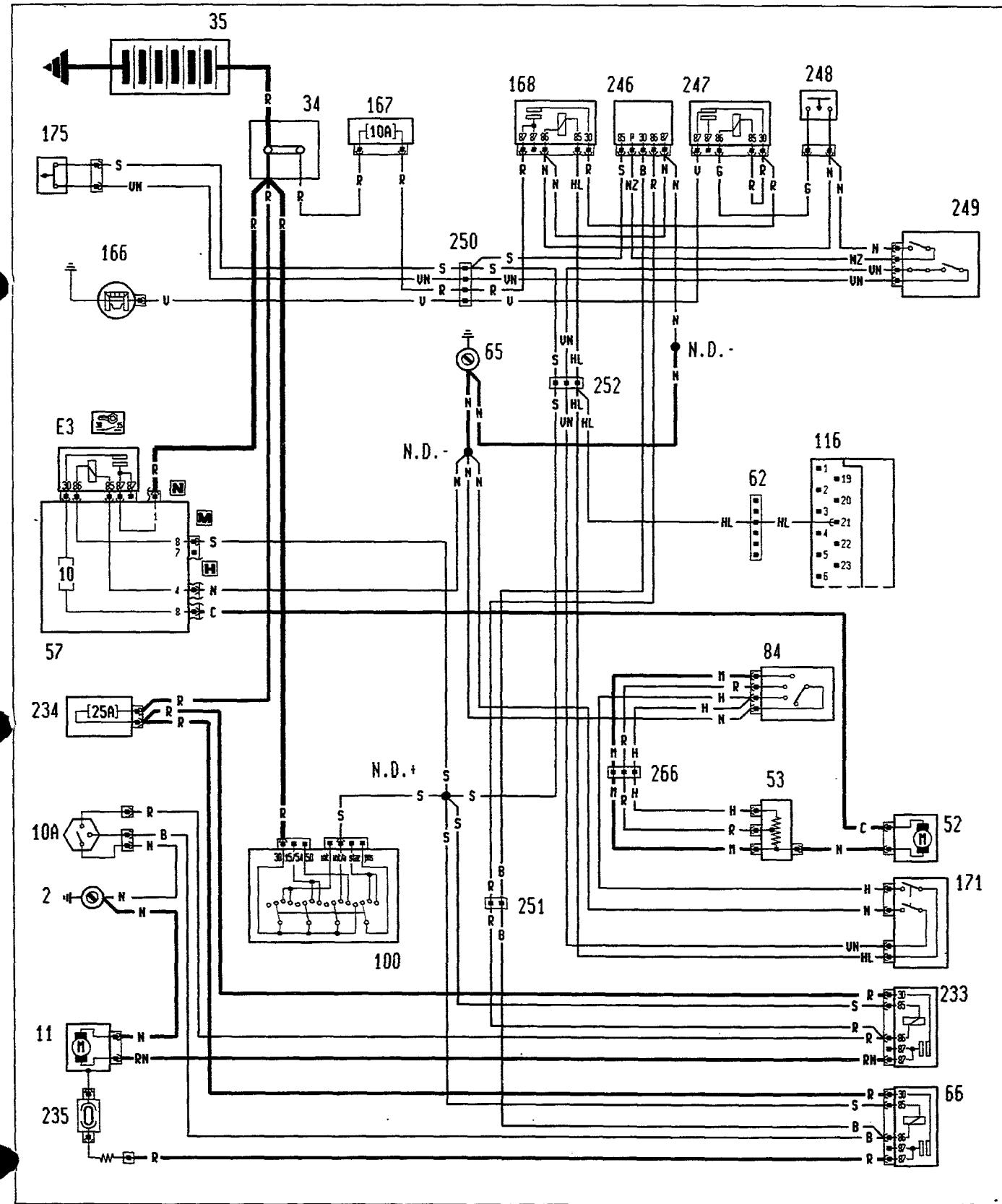
Parking lights and warning lamp - Braking lights - Handbrake applied and insufficient brake fluid level warning light - Battery recharging warning light - Front brake pad wear warning light - Insufficient engine oil pressure warning light - Coolant overheating warning light - (See key at end of wiring diagrams)



P2008ZL01

Version: 2000 i.e. HF integrale 16v

Air conditioner (See key at end of wiring diagrams)



# Electrical equipment

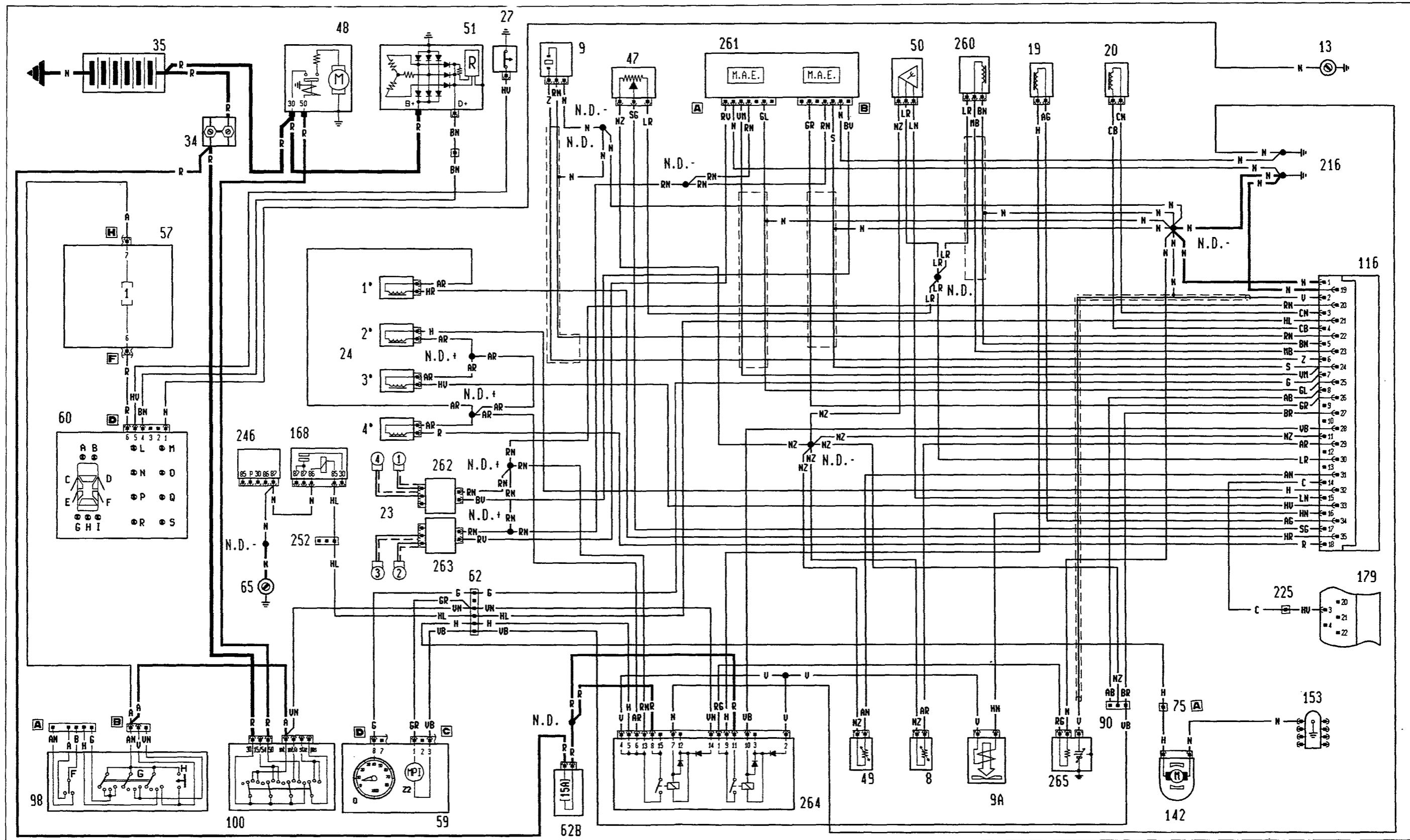
## Wiring diagrams

**DELTA HF integrale 16v**  
93 range

55.

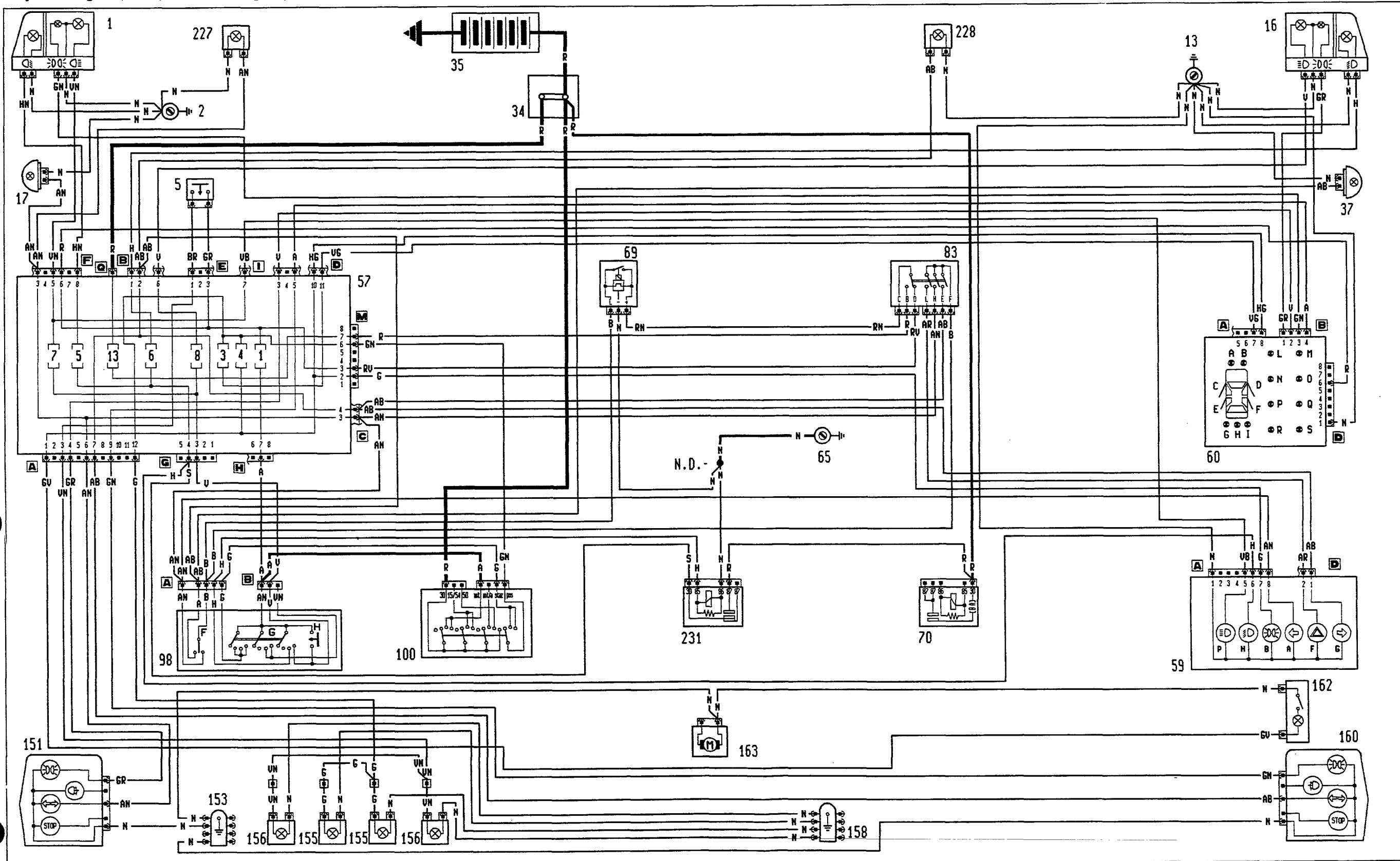
Version: 2000 i.e. HF integrale 16v

Starting - I.A.W. electronic injection/ignition - Recharging and warning light - Insufficient engine oil pressure warning light - Injection system failure warning light - (See key at end of wiring diagrams)



Version: 2000 i.e. HF integrale 16v

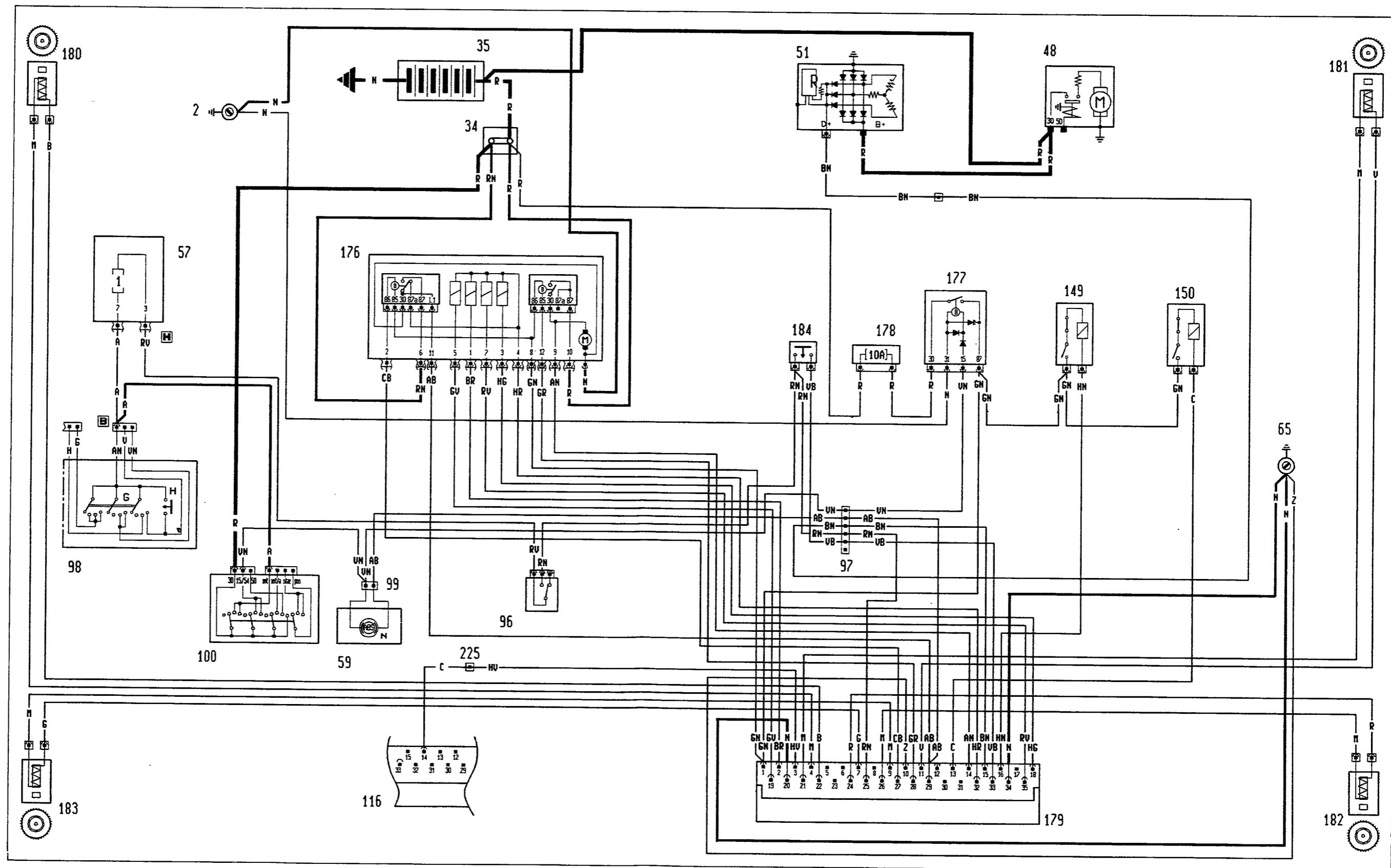
Parking lights and warning lamp - Dipped headlamps and warning light - Main beam headlamps and warning light - Headlamp flasher  
- Number plate lights - Direction indicators and warning light - Hazard warning lights and warning light - Reversing lights - Luggage compartment light - (See key at end of wiring diagrams).



**55.**

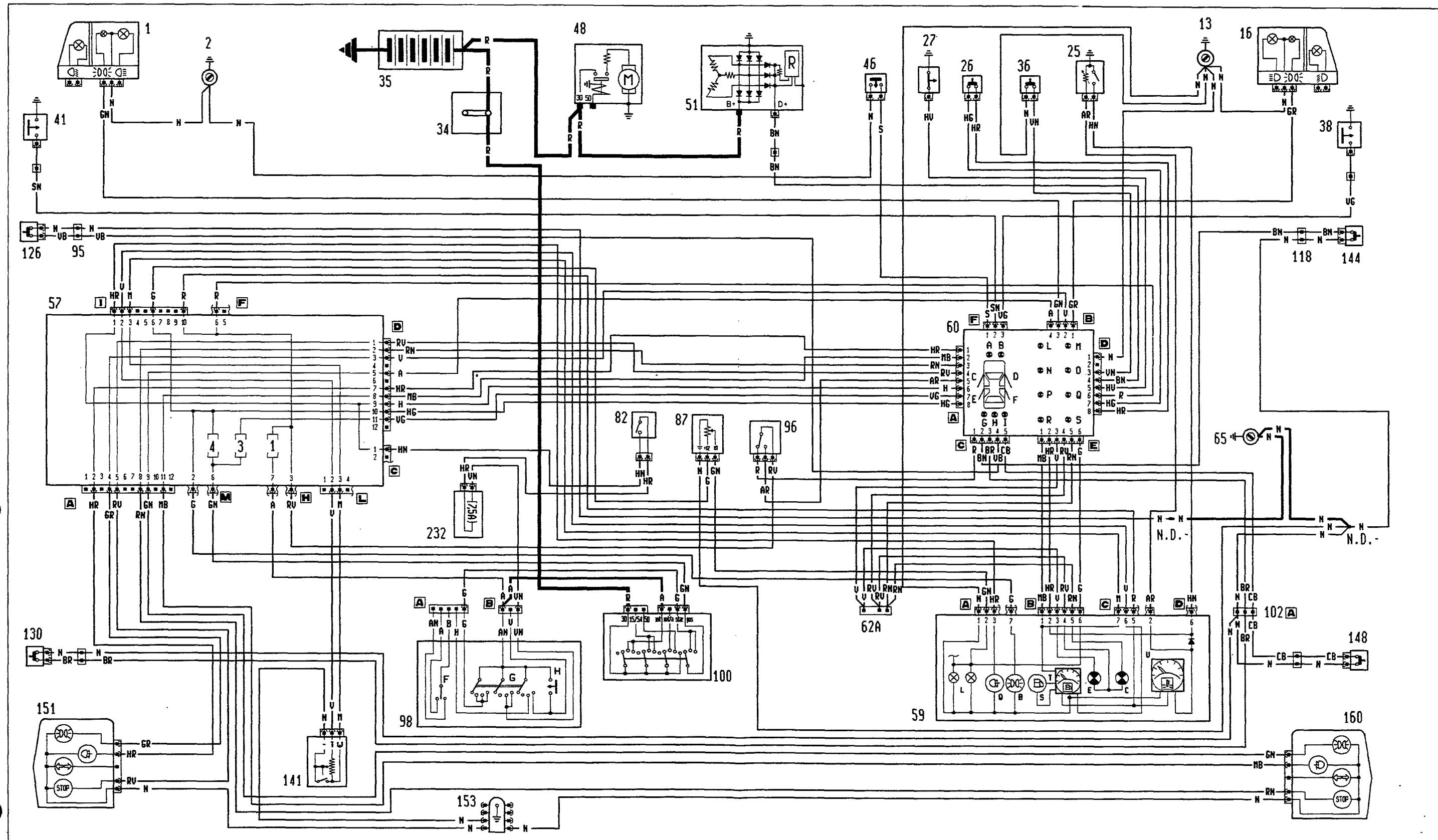
Version: 2000 i.e. HF integrale 16v

Anti-lock brakes and failure warning light (A.B.S.) - (See key at end of wiring diagrams).



Version: 2000 i.e. HF integrale 16v

Control-System - (See key at end of wiring diagrams).



**Key for components**

- 1 Left front light cluster
- 2 Left front earth cable loom
- 3 Electric horns
- 4 Left fog lamp
- 5 Reversing lights switch
- 8 Engine coolant temperature sensor (I.A.W.)
- 9 Detonation sensor
- 9A Over-Boost solenoid valve
- 10A Thermostatic switch for two stage engine cooling fan
- 11 Radiator cooling fan
- 12 Preparation for right fog lamp
- 13 Right front earth cable loom
- 16 Right front light cluster
- 17 Left side direction indicator
- 19 Automatic idle adjustment solenoid air valve (I.A.W.)
- 23 Spark plugs
- 24 Fuel injectors
- 25 Engine coolant temperature sender unit and switch signalling engine coolant overheating
- 26 Engine oil level sensor
- 27 Insufficient engine oil pressure switch
- 28 Engine oil pressure sender unit
- 29 Engine oil temperature sender unit
- 34 Connector block
- 35 Battery
- 36 Coolant level sensor
- 37 Right side direction indicator
- 38 Right front brake pad wear sensor
- 41 Left front brake pad wear sensor
- 46 Brake fluid level sensor
- 47 Butterfly valve position sensor (I.A.W.)
- 48 Starter motor
- 49 Air temperature sensor (I.A.W.)
- 50 Absolute pressure sensor
- 51 Alternator
- 52 Heater fan
- 53 Electric fan speed resistor
- 54 Windscreen wiper motor
- 57 Fuse and relay junction unit:  
E1 Electric horn relay  
E2 Heated rear windscreen relay  
E3 Ignition discharge relay
- 59 Instrument panel:  
A Left side direction indicators warning light  
B Side lights warning light

- C (Red) general warning light for Control-System
- E Starting go-ahead signal (green)
- F Hazard warning lights warning light
- G Right side direction indicators warning light
- H Dipped headlamps warning light
- I Fog lights warning light
- L Instrument panel light bulbs
- M Handbrake warning light
- N A.B.S. failure warning light
- O Rev counter
- P Main beam headlamps warning light
- Q Rear fog lamps warning light
- R Voltmeter
- S Fuel reserve warning light
- T Fuel level gauge
- U Coolant temperature gauge
- V Heated rear windscreen warning light
- X Electronic tachometer
- Z<sub>1</sub> Seat belts not fastened warning light
- Z<sub>2</sub> Injection system failure warning light
- 59A Instrument panel (version without Control-System)
- C Battery recharging warning light
- E Insufficient engine oil pressure warning light
- M Handbrake applied and insufficient brake fluid level warning light
- N Front brake pad wear warning light
- O Rev counter
- Z Coolant overheating warning light
- 60 Control-System :  
A Left front side light failure warning light  
B Right front side light failure warning light  
C Left front door ajar warning light  
D Right front door ajar warning light  
E Left rear door ajar warning light  
F Right rear door ajar warning light  
G Warning light signalling failure with side lights, left rear brake light  
H Rear fog lamps warning light  
I Warning light signalling failure with side lights, right rear brake light  
L Insufficient brake fluid level warning light

- M Front brake pad wear warning light
- N Insufficient engine oil pressure warning light
- O Battery recharging warning light
- P Insufficient engine oil level warning light
- Q Insufficient coolant level warning light
- R Automatic transmission fluid overheating warning light
- S Engine coolant overheating warning light
- 61 Intermittent device for handbrake warning light
- 62 Connection for electronic injection cables
- 62A Control-System diagnostic socket
- 62B 15A protective fuse for injectors and electric fuel pump
- 63 Glove compartment light
- 64 Glove compartment light push button
- 65 Earth cable loom under dashboard
- 66 Engine cooling fan 1st speed relay
- 69 Intermittent device for direction indicators and hazard warning lights
- 70 Fog lights relay
- 73 Left front speaker wiring
- 74 Front courtesy light push button on left front pillar
- 75 Connector for left longitudinal cables
- 76 Connector for courtesy light cables
- 77 Combined instrument  
A Oil pressure gauge  
B Oil temperature gauge
- 77A Digital clock
- 78 Front courtesy light
- 80 Heated rear windscreen switch
- 81 Fog lights switch
- 82 Rear fog lamps switch
- 83 Hazard warning lights switch
- 84 Heater fan switch
- 85 Rearscreen wash/wipe switch
- 86 Rearscreen wiper switch
- 87 Instrument panel and Control system light dimmer
- 89 Switch light
- 90 Diagnostic socket for injection system
- 93 Left front electric window motor
- 95 Connecting for cables signalling left front door ajar
- 96 Brake lights switch
- 96A Brake lights switch
- 97 Connection for anti-lock braking system cables
- 98 Steering column switch unit
- A Connector
- B Connector
- C Connector
- D Connector
- E Connector
- F Direction indicators operation
- G Operation of side lights, dipped headlamps, main beam headlamps
- H Operation of headlamp flashers
- I Operation of windscreen wiper
- L Operation of windscreen washer
- M Operation of electric horns
- 99 Preparation for anti-lock braking system failure warning light
- 100 Ignition switch
- 102 Connection for cables for electric windows/-central locking/signalling doors ajar
- 103 Cigar lighter
- 104 Preparation for radio
- 105 Earth point on central tray
- 106 Left front electric window switch
- 107 Right front electric window switch
- 110 Push button for handbrake applied warning light
- 111 Central door locking control unit
- 112 Central locking control unit 15 A protective fuse
- 113 Electric front windows and electrically operated sun roof 25 A protective fuse
- 115 Electric front windows relay feed
- 116 Injection/ignition electronic control unit (I.A.W.)
- 118 Connection for cables signalling right front door ajar
- 119 Right front speaker wiring
- 120 Front courtesy light push button on right front pillar
- 121 Switch signalling seat belts not fastened
- 122 Right front electric window motor
- 125 Left front door locking motor
- 126 Push button signalling left front door ajar
- 127 Rear courtesy light push button on left centre pillar
- 129 Left rear door locking motor
- 130 Push button signalling left rear door ajar
- 134 Left rear courtesy light
- 136 Heated rear windscreens
- 141 Fuel level gauge and reserve warning light control
- 142 Electric fuel pump
- 143 Right front door locking motor

- 144 Push button signalling right front door ajar  
 145 Push button for rear courtesy light on right centre pillar  
 147 Right rear door locking motor  
 148 Push button signalling right rear door ajar  
 149 Longitudinal accelerometer for anti-lock brakes  
 150 Transverse accelerometer for anti-lock braking system  
 151 Left rear light cluster  
 153 Rear earth cable loom  
 155 Number plate lights  
 156 Reversing lights  
 158 Earth cable loom on tailgate  
 159 Rearscreen wash/wipe  
 160 Right rear light cluster  
 161 Right rear courtesy light  
 162 Luggage compartment courtesy light  
 163 Electric windscreen washer pump  
 164 Electric pump for rarscreen washer  
 166 Compressor pulley electro-magnetic coupling  
 167 Air conditioner 10 A protective fuse  
 168 Air conditioning system electro-magnet coupling relay feed  
 171 Air conditioning system switch  
 175 Idle pressure switch (anti-frost)  
 176 Hidraulic control unit  
 177 Anti-lock brakes relay circuit  
 178 10 A protective fuse for anti-lock braking circuit  
 179 Anti-lock braking system electronic control unit  
 180 Sensor on left front wheel  
 181 Sensor on right front wheel  
 182 Sensor on right rear wheel  
 183 Sensor on left rear wheel  
 184 Switch on clutch pedal  
 188 Connection for electrically operated sun roof cables  
 189 Electrically operated sun roof switch  
 190 Electrically operated sun roof ideogram light  
 191 Electric sun roof control unit  
 192 Geared motor for electrically operated sun roof  
 193 Sun roof end of travel switch  
 194 Connection for sun roof cables  
 195 Connection for sun roof cables  
 216 Earths on engin  
 225 Anti-lock braking system cable coupling  
 227 Left front direction indicator  
 228 Right front direction indicator

- 231 Dipped beam headlamps remote control switch  
 232 7.5 A protective fuse for rear fog lamps  
 233 Engine cooling fan 2nd speed relay  
 234 25 A protective fuse for engine cooling fan  
 235 Current resistance restricter for engine cooling fan  
 236 Impulse generator for speedometer signal  
 246 Delay device for engine cooling fan  
 247 Relay for switching off air conditioning compressor  
 248 Thermistor for switching off air conditioning compressor  
 249 Threhee stage pressure switch  
 250 Connection for air conditioner front cables  
 251 Connection for dashboard / air conditioner cables  
 252 Connection for dashboard / air conditioner cables  
 256 40A protective fuse for engine cooling fan  
 257 Relay for car interior fan 1st speed  
 258 Compressor switch  
 259 Current stealer terminal  
 260 Timing sensor  
 261 Ignition unit  
 262 Ignition coil unit  
 263 Ignition coil unit  
 264 Multiple relay  
 265 Heated Lambda sensor  
 266 Connection for heater/air conditioner cables

#### Cable colour code

|    |                   |                 |
|----|-------------------|-----------------|
| A  | Light blue        | CN Orange-Black |
| B  | White             | GN Yellow-Black |
| C  | Orange            | GL Yellow-Blue  |
| G  | Yellow            | GR Yellow-Red   |
| H  | Grey              | GV Yellow-Green |
| L  | Blue              | HG Grey-Yellow  |
| M  | Brown             | HN Grey-Black   |
| N  | Black             | HR Grey-Red     |
| R  | Red               | HV Grey-Green   |
| S  | Pink              | LB Blue-White   |
| V  | Green             | LG Blue-Yellow  |
| Z  | Violet            | LN Blue-Black   |
| AB | Light blue-White  | LR Blue-Red     |
| AG | Light blue-Yellow | LV Blue-Green   |
| AN | Light blue-Black  | MB Brown-White  |
| AR | Light blue-Red    | MN Brown-Black  |
| AV | Light blue-Green  | NZ Black-Violet |
| BG | White-Yellow      | RB Red-White    |
| BL | White-Blue        | RG Red-Yellow   |
| BN | White-Black       | RN Red-Black    |
| BR | White-Red         | RV Red-Green    |
| BV | White-Green       | SN Pink-Black   |
| BZ | White-Violet      | VB Green-White  |
| CA | Orange-Light blue | VN Green-Black  |
| CB | Orange-White      | VR Green-Red    |
|    |                   | ZB Violet-White |